

1 What is claimed is:

2

3 1. A method of ^{in scope} installing a gasket in a socket end of a
4 thermoplastic pipe which is used to form a pipe coupling,
5 the method comprising the steps of:

6

7 providing a mandrel with an inner extent and an outer
8 extent and having a generally cylindrical outer working
9 surface;

10

11 installing a gasket at a first circumferential position
12 on the outer working surface;

13

14 extruding a strip of thermoplastic material and spirally
15 wrapping the extruded strip about the working surface of
16 the mandrel and over the gasket, whereby the
17 thermoplastic material is conformed to the shape of the
18 gasket to form a retention groove for retaining the
19 gasket and again contacts the working surface of the
20 mandrel to form a bell connection;

21

22 retracting the bell connection and the retained gasket
23 from the working surface of the mandrel.

24

25 2. The method of claim 1, further comprising the steps
26 of:

27

28 electrowelding the thus formed bell connection onto a
29 generally cylindrical length of thermoplastic pipe.

30

31 3. The method of claim 1, wherein the thermoplastic
32 material is polyethylene.

4. A method of manufacturing an integrated bell connection for a joint of thermoplastic pipe, the method comprising the steps of:

4
5 providing a rotatably driven mandrel having a
6 substantially cylindrical end section corresponding to
7 the internal diameter of a bell connection to be formed,
8 the mandrel having an outer extent and an inner extent,
9 the mandrel having a locating area for an elastomeric
10 gasket on an external surface thereof;

11
12 positioning an elastomeric gasket on the external surface
13 of the mandrel at the locating area thereof, the locating
14 area being between the inner and outer extents of the
15 mandrel;

16
17 forming a bell connection about the mandrel and suitably
18 located gasket by extruding a melt profile made of
19 thermoplastic material onto the mandrel beginning
20 adjacent the inner extent of the mandrel and spirally
21 winding the melt profile around the cylindrical end
22 section of the mandrel and around the gasket such that
23 adjacent windings of the melt profile make contact;

```

24
25 cooling the/bell connection thus formed;

```

26
27 removing the bell connection and gasket from the mandrel.

28
29 5. A method of manufacturing an integral gasket and bell
30 connection for a joint of thermoplastic pipe, the method
31 comprising the steps of:

1 providing a rotatably driven mandrel having a
2 substantially cylindrical end section corresponding to
3 the internal diameter of a bell connection to be formed,
4 the mandrel having an outer extent and an inner extent,
5 the mandrel having a locating area for an elastomeric
6 gasket on an external surface thereof;

7
8 positioning an elastomeric gasket on the external surface
9 of the mandrel at the locating area thereof, the locating
10 area being between the inner and outer extents of the
11 mandrel;

12
13 forming a bell connection about the mandrel and suitably
14 located gasket by extruding a melt profile made of
15 thermoplastic material onto the mandrel beginning
16 adjacent the inner extent of the mandrel and spirally
17 winding the melt profile around the cylindrical end
18 section of the mandrel and around the gasket such that
19 adjacent windings of the melt profile make contact;

20
21 terminating the extruding step while continuing to rotate
22 the mandrel;

23
24 spraying cooling water over the bell end connection thus
25 formed;

26
27 cutting a free end of the connection with a rotating
28 knife; and

29
30 removing the bell end connection and integral gasket from
31 the mandrel.

32

1 6. The method of claim 5, wherein the thermoplastic
2 material being extruded is polyethylene.

3
4 7. The method of claim 5, wherein the mandrel is heated
5 to at least about 100 degrees C. before the melt profile
6 is extruded.

7
8 8. The method of claim 5, further comprising the step of
9 subjecting the extruded melt profile to a weak mechanical
10 loading by means of a rotating roll for intensifying a
11 welding-together of the contacting melt profile windings.

12
13 ^{Fig 2} 9. The method of claim 5, wherein the rotating knife
14 comprises a freely rotating circular blade which is
15 pressed against the thermoplastic material of the bell
16 end connection for cutting the free end of the
17 connection.

18
19 10. The method of claim 5, further comprising the steps
20 of:

21
22 removing the bell connection from the mandrel by blowing
23 pressurized air between the mandrel and the connection
24 while directly pushing the connection in a direction
25 opposite the mandrel. *fig 3*

26
27 11. The method of claim 10, further comprising the step
28 of:

29
30 electrowelding the thus formed bell connection onto a
31 generally cylindrical length of thermoplastic pipe.

32